

REMARKS

The present invention and the references have been described in several previous responses. Those descriptions will not be repeated here. Resolution of the §103(a) issues raised by the examiner in this case turn, in applicants' view, on the evidence of unexpected results that the applicants have provided in their application. This has been explained in several responses. Applicants respectfully disagree with the examiner's treatment of that evidence. The examiner's treatment of that evidence is contrary to the established law, and in particular contrary to MPEP §2144.05.

The examiner's position can be summarized in two statements: (1) applicants' "claimed effects and physical properties, i.e., the value of specular gloss would implicitly be achieved by a combination with all of the claimed ingredients" (paragraphs 7 and 16 of the last office action) and (2) "With respect to the amount of colloidal silica in the total particles, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. In re Aller, 105 USPQ 233." (paragraph 13 of the office action.).

The first of these is factually incorrect. The value of specular gloss is *not* "implicitly achieved" by the teachings of the art, and in particular by the Otani reference. *This is the exact point of the experimental evidence that the applicants have repeatedly pointed out to the examiner.*

The examiner has repeatedly challenged the applicants to present experimental data on this point (see, e.g., paragraph 7 of the latest office action), and applicants have done so. The experimental evidence shows that the combination of properties achieved with applicants' invention is *only* achieved by making applicants' particular selection of colloidal silica. The combination is *not* achieved when other colloidal silica products within Otani's ranges. Once again, the examiner is requested to review comparative examples C-2, C4, C-10 and C-13 of applicants' specification, and the discussion thereof that appeared in applicants' last response. This fully answers the examiner's request for experimental evidence

As to the examiner's second point, the applicants agree that mere optimization of a variable to obtain an optimized result does not confer patentability. *But for this rule to apply, the variable first must be recognized in the art as an result-effective variable.* See MPEP §2144.05.II.B and the cases cited therein. Within Otani's broad ranges, he does not recognize the shape of the colloidal silica as being result-effective. Otani does not recognize,

within his broad ranges, that the ratio of secondary particle to primary particle diameter is result-effective. In fact, Otani makes no mention of this ratio at all; it is only with hindsight, with the benefit of applicants' disclosure, that one would look to derive this ratio from Otani's other teachings. It appears that this ratio had no significance whatsoever to Otani.

These variables are *not* recognized in the art as being result-effective. It therefore follows, according to MPEP §2144.05.II.B., that applicants' selections are not merely "optimization" as a result of "routine experimentation". And to the extent that Otani does show a preference, Otani teaches away, as explained in detail in previous responses.

The USPTO and the courts have long recognized that a patentable invention can be made through the selection of variables within a broader range described in the prior art. The applicable rules, as set forth in MPEP §2144.05, are:

- A. A *prima facie* case of obvious will usually exist (MPEP §2144.05.I).
- B. Non-obviousness can then be established by showing the criticality of the claimed range in achieving unexpected results, or by showing that the art teaches away from the claimed invention in any material respect. (MPEP §2144.05.III).
- C. Optimization through routine experimentation is not sufficient to overcome the *prima facie* case (MPEP §2144.05.II.A). However, experimentation is not "routine" unless the variable under consideration is recognized in the art as being "result-effective". MPEP §2144.05.II.B)

Here, applicants have shown satisfied rule B, and shown that it is not a matter of optimization through routine experimentation. Rule C does not come into play because the variables are not recognized in the art as being result effective.

The examiner is once again invited to compare applicants' Example 2 with their comparative examples C-2 and C-4 and applicants' examples 18 and 19 with their comparative examples C-10 and C-13. This data is reproduced below one more time. If the examiner stills finds this experimental evidence to be inadequate in any way, she is respectfully requested to point out specific reasons why the evidence is insufficient. Once again, applicants are prepared to put this evidence into the form of a declaration if the examiner deems it necessary.

The most relevant of applicants' experimental results are reproduced here:


Ex. No.	Colloidal Silica Shape	Primary Particle Dia.	Secondary Particle Dia.	Secondary /Primary ratio	Gloss	Dry Ink Abs.	Pigment Ink. Abs	Image Clarity, dry ink	Image Clarity, pigment Ink
2	Peanut	23	51	2.2	○	○	○	○	⊙
C-2	Bead	18-25	100-200	5.5-8.0	Δ	○	○	X	Δ
C-4	Sphere	10-20	10-20	1.0	○	X	X	○	X

Here, ⊙ indicates the best properties, ○ the next best, Δ being worse still and X being worst of all.

Ex. No.	Colloidal Silica Shape	Primary Particle Dia.	Secondary Particle Dia.	Secondary /Primary ratio	Gloss	Dry Ink Abs.	Pigment Ink. Abs	Image Clarity, dry ink	Image Clarity, pigment Ink
18	Peanut	23	51	2.2	○	○	○	○	○
19	Peanut	14	33	2.3	○	○	○	○	○
C-10	Chain	18-25	100-200	5.5-8.0	○	○	○	X	X
C-13	Sphere	10-20	10-20	1.0	○	X	Δ	○	○

Once again, a Notice of Allowance is respectfully requested.

Respectfully submitted,
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